

# PNMTase (N-20): sc-16456

## BACKGROUND

Phenylethanolamine N-methyltransferase (PNMT/PNMTase) catalyzes the synthesis of epinephrine from norepinephrine, the last step of catecholamine biosynthesis. Human PNMT, a 282 amino acid polypeptide, shares significant homology with tyrosine hydroxylase. Expression of PNMT is regulated by hormonal and neural stimuli because its promoter contains sequences responding to cholinergic and depolarization stimuli. Cortisol and Egr-1 enhance PNMT expression, which controls the adrenaline production in adrenaline-secreting pheochromocytomas. Protein kinase A also up-regulates PNMT expression, whereas protein kinase C causes down-regulation and pituitary adenylate cyclase-activating polypeptide lowers PNMT activity. PNMT is expressed in a tissue-specific manner based on an alternative splicing mechanism, termed intron retention, to produce two splice variants. This mechanism is sensitive to regulation by glucocorticoids in the brain. The spliced, intronless mRNA is down-regulated postnatally, while the intron-retained mRNA is constitutively expressed through adulthood. At all stages of development, only the intronless message is expressed in adrenals. PNMT gene is associated with increased susceptibility to the sporadic form of early-onset Alzheimer disease.

## REFERENCES

- Baetge, E.E., et al. 1986. Complete nucleotide and deduced amino acid sequence of bovine phenylethanolamine N-methyltransferase: partial amino acid homology with rat tyrosine hydroxylase. *Proc. Natl. Acad. Sci. USA* 83: 5454-5458.
- Kaneda, N., et al. 1988. Molecular cloning of cDNA and chromosomal assignment of the gene for human phenylethanolamine N-methyltransferase, the enzyme for epinephrine biosynthesis. *J. Biol. Chem.* 263: 7672-7677.
- Lee, Y.S., et al. 1999. Neural regulation of phenylethanolamine N-methyltransferase (PNMT) gene expression in bovine chromaffin cells differs from other catecholamine enzyme genes. *J. Mol. Neurosci.* 12: 53-68.
- Choi, H.J., et al. 1999. Differential involvement of PKA and PKC in regulation of catecholamine enzyme genes by PACAP. *Peptides* 20: 817-822.

## CHROMOSOMAL LOCATION

Genetic locus: PNMT (human) mapping to 17q12; Pnmt (mouse) mapping to 11 D.

## SOURCE

PNMTase (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PNMTase of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16456 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## APPLICATIONS

PNMTase (N-20) is recommended for detection of PNMTase of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PNMTase (N-20) is also recommended for detection of PNMTase in additional species, including equine, canine and porcine.

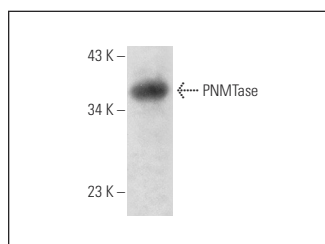
Suitable for use as control antibody for PNMTase siRNA (h): sc-106772, PNMTase siRNA (m): sc-152358, PNMTase shRNA Plasmid (h): sc-106772-SH, PNMTase shRNA Plasmid (m): sc-152358-SH, PNMTase shRNA (h) Lentiviral Particles: sc-106772-V and PNMTase shRNA (m) Lentiviral Particles: sc-152358-V.

Positive Controls: human adrenal gland extract: sc-363761.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



PNMTase (N-20): sc-16456. Western blot analysis of PNMTase expression in human adrenal gland tissue extract.

## SELECT PRODUCT CITATIONS

- Tillinger, A., et al. 2006. Modulation by 6-hydroxydopamine of expression of the phenylethanolamine N-methyltransferase (PNMT) gene in the rat heart during immobilization stress. *Stress*. 9: 207-213.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.